



***Hieracium sourekii* (Asteraceae), a new species in the *H. senescens* aggregate and the discovery of *H. subortum* in the Sudetes, Poland**

ZBIGNIEW SZELĄG

University of the National Education Commission, Institute of Biology and Earth Sciences, Podchorążych 2, 30-084 Kraków, Poland

 azszelag@wp.pl;  <https://orcid.org/0000-0002-7017-2823>

Abstract

Hieracium sourekii is a new, triploid, apomictic species discovered in the Karkonosze Mountains (Giant Mountains) in the Sudetes, Poland. It combines the morphological features of *H. alpinum* and *H. subortum*, and belongs to the *H. senescens* aggregate. The epithet honours Josef Šourek, Czech botanist, an expert on the flora of the Karkonosze Mountains. *Hieracium subortum* is neotypified from specimens found in a new site in Poland as no original material has been traced. *Hieracium sourekii* and *H. subortum* are illustrated with photos of the type specimens and live plants.

Key words: apomictic plant, Europe, Giant Mountains, *Hieracium*, Karkonosze Mountains, taxonomy

Introduction

My recent studies on the genus *Hieracium* Linnaeus (1753: 799) in the Karkonosze Mountains (Giant Mountains) in the Sudetes have led to some interesting discoveries, including three species new to science (Szeląg 2022, 2023). The present paper describes the discovery of another new plant in the Karkonosze Mountains combining the morphological features of *H. alpinum* Linnaeus (1753: 800) and *H. subortum* Schneider (1894: 23), a species related with *H. schmidtii* Tausch (1828: 65). Consequently, I classified this plant in the *H. senescens* aggregate *sensu* Zahn (1921), a minor group in *H. sect. Subalpina* Pugsley (1948: 53) including *H. senescens* Backhouse (1856: 32), *H. marshallii* Linton (1891: 271) and *H. cremnanthes* (Hanbury) Pugsley (1942: 179) which are frequent in northern Britain (Kenneth & Stirling 1970; McCosh & Rich 2018), and *H. prasinicolor* Besse & Zahn in Zahn (1906: 541) known only from the type locality in the Swiss Alps. *Hieracium senescens* is endemic to Scotland and Ireland, while *H. cremnanthes* and *H. marshallii* are Scottish endemics (Rich 2020).

As the capitulum excision experiments have determined the new plant is apomictic, so I describe it as a new species.

Material and methods

The research was based on my herbarium material collected in the Karkonosze Mountains for three decades, as well as on herbarium collections kept at PR, PRC, BRNM, BP and WRSL. The description of the new species is based on herbarium specimens collected in the field and observation of living plants cultivated in the garden.

Results

***Hieracium sourekii* Szeląg, *sp. nov.* (Figs. 1–3)**

Type:—POLAND. Sudetes, Karkonosze Mts., Biały Jar glacial niche, eroded porphyry rocks with *Pinus mugo*, 1270 m a.s.l., 4.07.1992, Z. Szeląg (holotype KRAM; isotypes Herb. Hierac. Z. Szeląg).

Paratypes:—POLAND. Sudetes, Karkonosze Mts., Biały Jar glacial niche, eroded porphyry rocks, 1310 m a.s.l., originally found on July 25, 2020, specimens from plants cultivated from seed in the author's garden, pressed on June 5, 2024, Z. Szeląg (Herb. Hierac. Z. Szeląg).



FIGURE 1. Holotype of *Hieracium sourekii* (KRAM).



FIGURE 2. *Hieracium sourekii* in cultivation (rosette, capitula).

Description:—Phyllopodous. Stem 20–35 cm high, robust, in the lower third with scattered pale simple hairs 1–2 mm long, sparse stellate hairs and few pale microglands; in middle part with sparse dark-based simple hairs up to 2 mm long, numerous stellate hairs and numerous black glandular hairs 0.3–0.6 mm long; within synflorescence with sparse, dark-based simple hairs 1–1.5 mm long, subdense stellate hairs, and dense, black glandular hairs up to 1.2 mm long. Synflorescence branches 1–2 (in cultivation 3–5 in axils of all cauline leaves), up to 13 cm long, with 1–3 capitula. Acladium 3–5 cm long. Rosette leaves 8–12, up to 10(–12) cm long and up to 3 cm wide, cuneate at base, tapered to a long petiole, glaucous-green and somewhat coriaceous; outer leaves obovate, remotely denticulate and dentate at base, rounded at apex; inner leaves oblanceolate, sharply dentate or serrate at base, acute at apex; on upper surface with numerous 0.5–1.2 mm long trichomes and with sparse stellate hairs along the midrib; on margins with numerous stiff trichomes up to 1.5 mm long and sparse glandular hairs; on lower surface with scattered to numerous trichomes up to 1.0 mm long, on midrib with numerous trichomes up to 1.5 mm long and scattered, pale glandular hairs. Cauline leaves 1–3 sessile, lanceolate, entire, up to 3 cm long, acute at apex; on upper surface with sparse, pale trichomes 0.5–0.7 mm long; on lower surface with numerous, dark-based trichomes up to 1.5 mm long; on midrib mixed with sparse, blackish glandular hairs. Peduncles with few, dark-based simple hairs 1.0–1.5 mm long, dense stellate hairs, and very dense, black glandular hairs 0.6–1.2 mm long. Bracteoles 1–3, separate from capitula. Involucre 10–11 mm long, subglobose at base with dense indumentum. Involucral bracts dark green with blackish midrib, lanceolate, acute at apex, with rather dense, black in lower half simple hairs up to 1.5 mm long, and quite dense blackish glandular hairs 0.5–1.1 mm long (without stellate hairs). Ligules yellow, with numerous cilia at apex. Styles yellow (dirty-yellow when dried). Achenes black, 3.1–3.4 mm long. Pappus pale grey. Pollen sparse, spherical and of varying size. Flowering in July.

Chromosome number and mode of reproduction:— $2n = 3x = 27$, agamosperous (Grabowska-Joachimik & Szela, unpubl.).

Distribution and habitat:—Endemic to the Karkonosze Mountains in the Sudetes, known only from the Biały Jar glacial niche. In 2023, the population of *H. sourekii* comprised not more than 40 plants, growing on eroded porphyry rocks, amongst the loose thickets of *Pinus mugo* (Fig. 5), together with *H. subortum*, at 1250–1320 m a.s.l.

The population of *H. sourekii* has decreased compared to 1992, when I first found it. The main reason of the decline is the habitat destruction by tourists visiting this place in the summer season. The succession of *Deschampsia caespitosa* and *Pinus mugo* is also a threat, leading to the decline of many mountain grassland plants in the Karkonosze Mountains (Grulich 2017).

Etymology:—The species is named in honour of Josef Šourek (1891–1968), Czech botanist, retired colonel of the former Czechoslovak army, a brave man and faithful to his ideals at the time when this was not common (Procházka 2002). He wrote the Flora of the Giant Mountains where he made many significant floristic discoveries (Šourek 1970).

Affinity:—In general habit *Hieracium sourekii* is similar to *H. atratum* s.lat. but differs in the glaucous, somewhat

coriaceous leaves, smaller capitula, yellow styles, and smaller cauline leaves. They differ also karyologically; *H. atratum* s.lat., despite its high morphological diversity in the Karkonosze Mountains, is represented here by only tetraploid taxa (Musiał *et al.* 2024).



FIGURE 3. Involucres of *Hieracium sourekii* (left) and *H. subortum* (right) (from holotypes).

Discussion:—It is very likely that *H. sourekii* has originated *in situ* as a result of hybridization between the local populations of *H. alpinum* and *H. subortum*. As no diploid populations of *H. alpinum*, much less *H. subortum*, are currently known in the Sudetes, it is most likely that *H. sourekii* is a relict species (like a number of other hybridogenous *Hieracium* taxa in the Sudetes) which originated when sexual populations of *H. alpinum* occurred here as well.

Hieracium subortum is endemic to the Karkonosze Mountains, previously only known from two localities in the Czech side of the mountains where it has not been collected for over a hundred years (Zahn 1935; Šourek 1970). The new locality in the Biały Jar glacial niche is the first on the Polish side of the mountains where it was discovered in 1992. In 2023, the population of *H. subortum* comprised at least 130–150 flowering and numerous vegetative plants spread over about two hectares, both above and below the tourist road, at 1180–1370 m a.s.l.

Schneider (1894) considered *H. subortum* as morphologically intermediate between two taxa of the *H. schmidtii* aggregate, i.e. *H. rupicolum* (Fries 1850: 96) and *H. schmidtii*. Zahn (1935) included it in the *H. glaucinum* aggregate comprising taxa intermediate morphologically between *H. murorum* s.lat. and *H. schmidtii*. In a recent publication, *H. subortum* is listed as a synonym of *H. glaucinum* Jordan (1848: 22) which means it has been somewhat overlooked (Chrtěk 2004).

I have searched for the original material of *H. subortum* in the main Central European herbaria, including the herbarium of the Wrocław University (WRSL) where the Sudetic collection of Gustav Schneider is held, but have not so far traced any. Therefore I designate a neotype for *H. subortum* from specimens collected in the Biały Jar glacial niche to help with interpretation of the species.



FIGURE 4. Neotype of *Hieracium subortum* (KRAM).



FIGURE 5. Habitat of *Hieracium sourekii* and *H. subortum* in the Biały Jar glacial niche.

Hieracium subortum Schneider (1894: 23) (Figs. 3–4)

Type:—POLAND. Sudetes, Karkonosze Mts., Biały Jar glacial niche, eroded porphyry rocks with *Pinus mugo*, 1270 m a.s.l., 4.07.1992, Z. Szelaq (neotype KRAM, designated here; isoneotype Herb. Hierac. Z. Szelaq).

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